# 10 Steps to Digitizing Infrastructure Projects

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The McKinsey Global Institute estimates that the world will need to spend $57 trillion on infrastructure by 2030 to keep up with global GDP growth.[1] This estimate, however, comes at a time when large projects are typically taking 20 percent longer to finish than scheduled and are up to 80% over budget.[2] According to Mukund Sridhar, partner, McKinsey & Company, these conditions make "the construction industry ripe for disruption," adding that "the sector needs to embrace new technologies and improved practices in order to transform productivity and project delivery."

Here are 10 steps from Aconex that will help you digitize your next project and dramatically improve your chances of successfully delivering your project safely, on schedule and on budget.
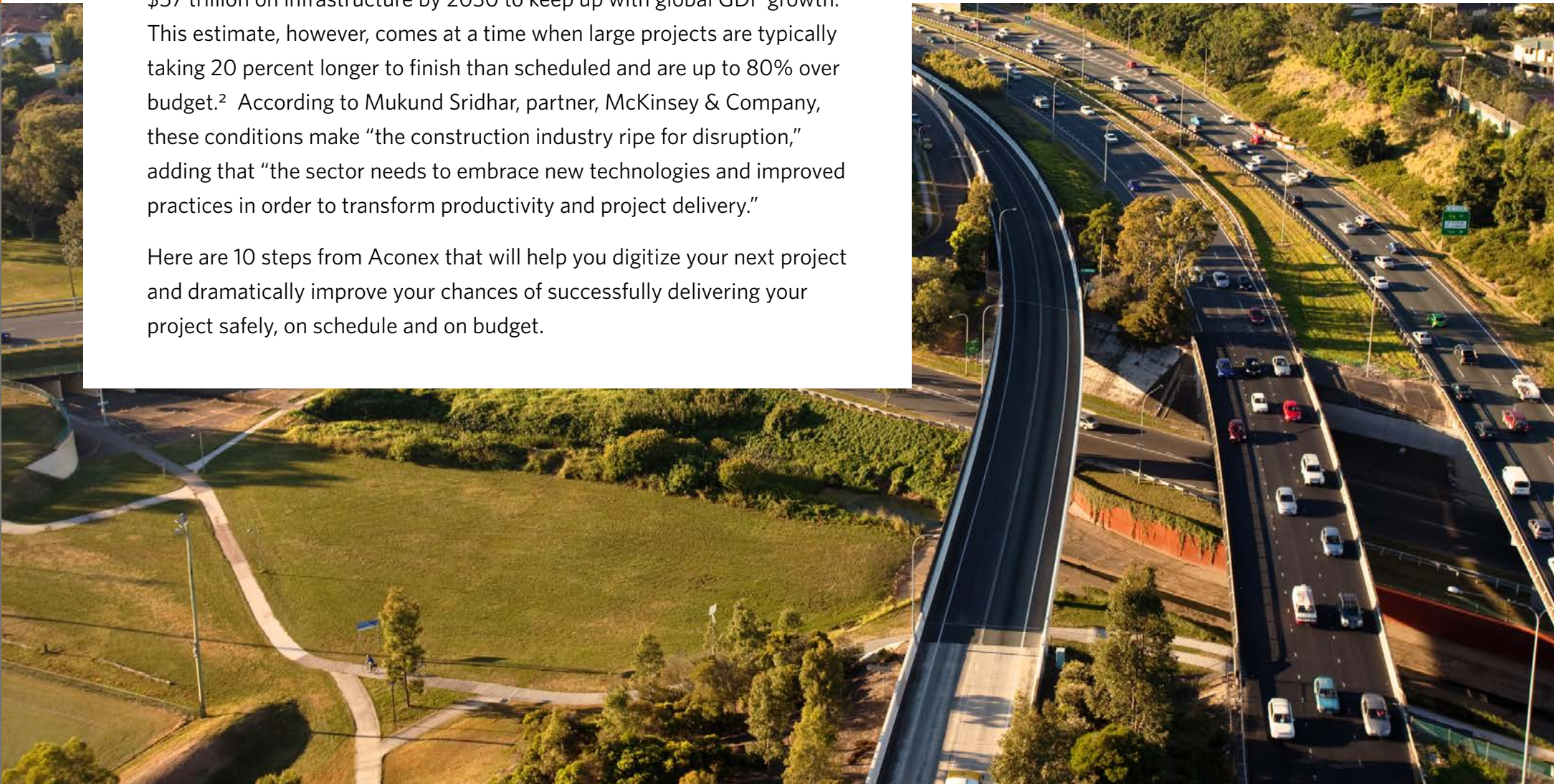
Step 1

Explore digital collaboration and mobility solutions.

The rise of megaprojects is changing how projects are delivered. Bigger projects require bigger project teams that are often dispersed across multiple geographies and worksites. To overcome these challenges, leading construction, engineering and design firms must take control of information and processes by harnessing true, project-wide collaboration. Digital collaboration allows project teams to integrate every facet of project planning, management and delivery – from budgeting to engineering to document management and everything in between.

Step 2

Look for partners, not vendors.

There is no shortage of vendors in the digital collaboration and mobility solutions space. In fact, according to McKinsey, this segment has attracted close to 60% of all venture funding in the construction-technology sector.[3] It's critical to find a partner that understands the industry, not just technology, and can tailor a solution to meet the project's specific requirements. However, don't fall into the trap of thinking a highly bespoke implementation is needed to effectively manage an infrastructure megaproject. Choose the partner that offers robust out-of-the-box functionality that doesn't compromise ease-of-use or intuitiveness.

Step 3

Focus on change management.

When evaluating digital technologies, it's also important to focus on looking for partners and tools that will make your organization better at adapting to and managing change. Constant change is inherent in construction and technology, and learning how to effectively capture, document and communicate change across multiple organizations can mean the difference between success and failure.

Step 4

Hire for soft skills and digital competencies.

Shifting focus to change management should also cross over into your hiring practices. And, since technology will be at the heart of this practice, it's critical that you start staffing project teams with individuals who have digital competencies. Look for people who are accustomed to working in fluid environments and understand how to use technology to improve efficiency and productivity. This type of individuals is also likely to become an advocate for change – in all its forms, including digital – and can accelerate digitalization within your organization.

Project name: Norberto Odebrecht Construction
Project size: US$1.8 billion | Location: Panama City, Panama

Step 5

Start collaborating digitally

So, you're now ready to kick-off your project. Be sure to start by equipping your entire team with a neutral, third-party collaboration platform. By providing one place to securely store and share information, you'll convert document management from an obstacle into a process that accelerates your team's productivity. The goal should be to adopt a single, integrated platform across your entire project team – not just a subset or a partial list of stakeholders – your *entire* project team.

Step 6
Digitize processes and workflows.

Another best practice at the outset of your project is to digitize and build accountability into processes and workflows. This means establishing (and digitally capturing) roles, responsibilities and timeframes before a project gets underway and then reinforcing these agreements across the entire project community. Doing this can yield significant dividends. One study [from McKinsey](#) found a $5 billion rail project saved more than $110 million and boosted productivity by using automated workflows to speed up reviews and approvals.[4]

Step 7

Get the most out of big data.

Megaprojects can extend over a decade and generate millions of documents and terabytes of data – much of which is never collected, measured or analyzed. To keep things moving, avoid errors and rework and make data-driven decisions, everyone on the project team (in the field or in the office) must have real-time access to the documentation they need, whether it is a bid package, a contract, an architectural drawing, a BIM model or a report. Regularly analyzing and reporting on project data will also help project teams spot and address issues early on to preempt threats to the schedule or budget.

Step 8

Improve oversight and compliance.

According to McKinsey, another way to address issues before they can derail a project is to explicitly require transparency and risk sharing in contracts. Many project owners are clearly outlining roles and responsibilities and also allowing the benefits of technology adoption and innovation to be shared.[5] Distributing risk amongst owners, construction managers, financing partners, as well as design and construction firms, makes projects more palatable to private investors. It also helps to create a pool of shared talent and aligns a project's many stakeholders.
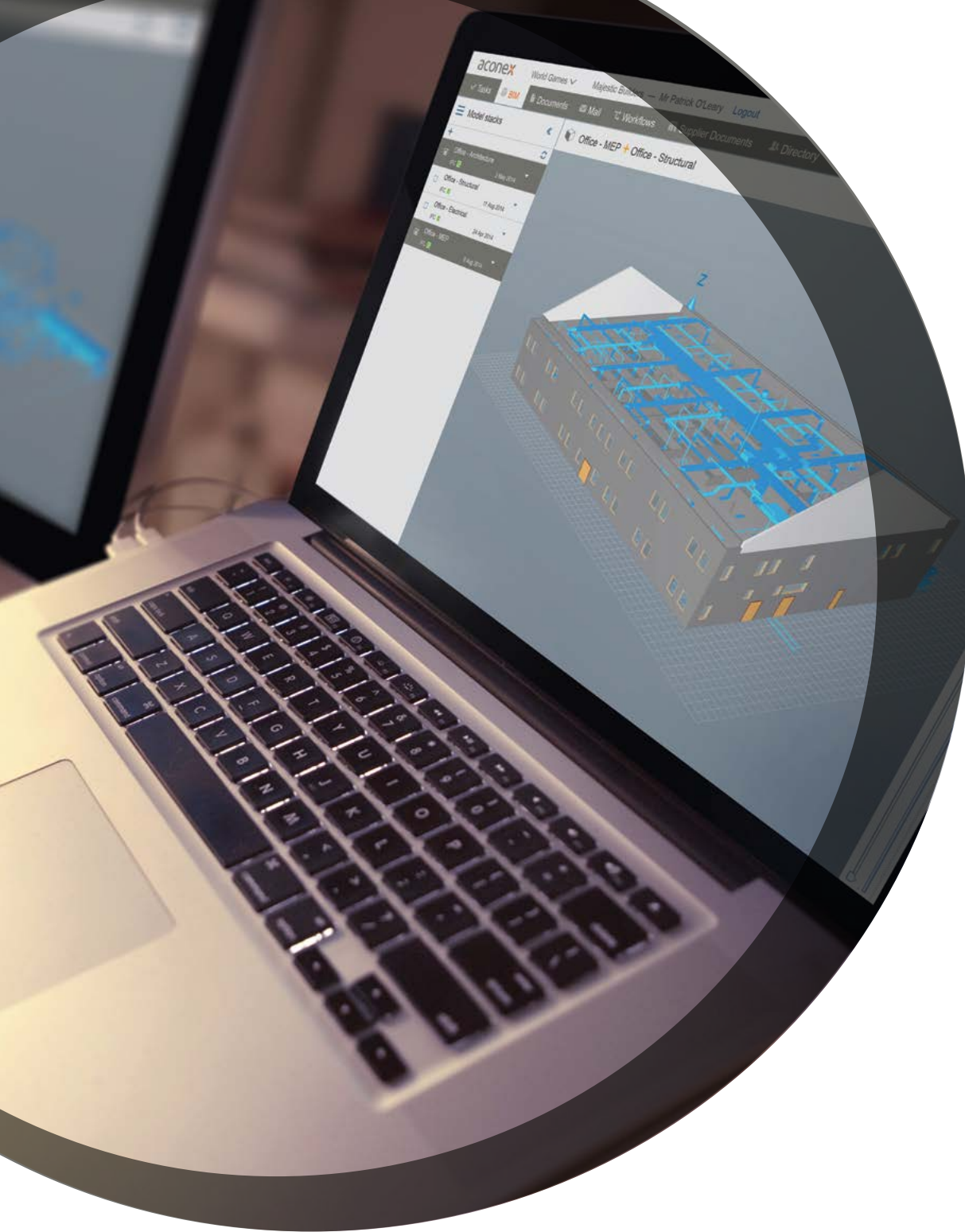
Step 9

Invest in Building Information Modeling (BIM) and the Internet-of-Things (IoT).

BIM is transforming design, construction and project delivery, ushering in a new era of collaboration and a free exchange of information across project stakeholders. By allowing members of the design and construction teams to collaborate in a virtual space, project teams are seeing striking improvements in design quality, constructability and clash detection. IoT also holds similar promise by allowing equipment, machinery and assets to communicate with one another, yielding tremendous amounts of data from which insights can be gleaned.

Step 10

Assess and mitigate risk at every turn

And, finally, if you do nothing else – be sure that your digitalization efforts and investments allow you to better assess and mitigate risk. As infrastructure projects continue to increase in size and complexity, so will the associated risks. Ultimately, the value of any new digital construction technology and or way of thinking or working will be assessed by how well it mitigates risks or threats to productivity and profitability. Project teams that understand this, along with the importance of transparency and collaboration, will have a solid foundation on which to deliver better, more reliable project outcomes.

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[1] Source: Imagining construction's digital future: Capital Projects and Infrastructure June 2016, McKinsey Productivity Sciences Center
[2] Source: Global Projects Database, IHS Herold.
[3] Source: Imagining construction's digital future: Capital Projects and Infrastructure June 2016, McKinsey Productivity Sciences Center
[4] Source: Imagining construction's digital future: Capital Projects and Infrastructure June 2016, McKinsey Productivity Sciences Center
[5] Source: Imagining construction's digital future: Capital Projects and Infrastructure June 2016, McKinsey Productivity Sciences Center

About Aconex

Aconex provides the #1 cloud solution to manage information and processes for the world's largest construction and engineering projects. Aconex gives owners and contractors project-wide visibility and control between the many different organizations collaborating across their projects.

With more than 500,000 users and over US$800 billion of project value delivered in 70 countries, Aconex is the industry's most widely adopted and trusted platform. The company's global customer base includes nine of the top ten engineering, procurement and construction (EPC/EPCM) firms, 23 of the 25 largest global design firms, and nearly all Fortune 500 construction and engineering companies.

Founded in 2000, Aconex has 40 offices throughout the world, including headquarters in Melbourne, Australia and San Francisco, California.

Our clients have recognized that the Aconex solution is rich in features that support industry processes and that it meets or exceeds their internal security and data management standards. This is backed by unmatched client service that ultimately drives user adoption, maximizes return, mitigates risk and promotes project success.

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